$$\frac{2\sqrt{\frac{l}{k}}}{l} = \frac{2}{\sqrt{kl}}; \text{ the volume, } V, = \frac{\pi}{2k} l^2; \text{ the surface, } S, = \frac{\pi}{6k^2}\{(1 + 4kl)^{3/2} - 1\}.$$

The necessary condition for a minimum may be found by equating to zero the partial derivatives of $S + \lambda V$ (λ a parameter) with respect to k and l. We thus obtain, after simplification, $\sqrt{1 + 4kl}(-2 - 2kl) + 2 - 3kl^2\lambda = 0$, and $\sqrt{1 + 4kl} + l\lambda = 0$.

Eliminating λ, there results $\sqrt{1 + 4kl}(-2 + kl) = -2$.

Rationalizing and reducing, we obtain a cubic equation with the roots $kl = 0$, 1.1569 +. 2.5931 +. Of these, the last is not a root of the last equation given above, but is extraneous, The first corresponds geometrically to an infinite ratio, *i. e.*, a "flat bowl," or a maximum. If there be a minimum, as seems evident from geometric considerations, it must correspond to the remaining root, $kl = 1.1569 +$. The ratio corresponding is $\frac{2}{\sqrt{kl}} = 1.8595$ or 1.86 −.

Also solved by A. M. HARDING, GERTRUDE I. McCAIN, and the Proposer.

NOTES AND NEWS.

Dr. W. D. MacMILLAN has been promoted from assistant professor to associate professor of astronomy at the University of Chicago.

Mr. PAUL HEMKE, of Northwestern University, has accepted a position as instructor in mathematics at the U. S. Naval Academy at Annapolis.

Dr. OTTO DUNKEL has been promoted from assistant professor to associate professor of mathematics at Washington University, St. Louis.

Dr. L. C. KARPINSKI has been promoted from associate professor to professor of mathematics at the University of Michigan.

Recent appointments as instructors in mathematics at Yale in the Sheffield Scientific School for next year are: Dr. T. M. STETSON, Mr. EUGENE TAYLOR, Mr. HERMAN BETZ.

Captain J. V. McKELVEY, of Cornell University, has been appointed assistant professor of mathematics at Iowa State College, Ames, Iowa.

Mr. F. L. KERR, of Northwestern University, has resigned his position as instructor in mathematics to become registrar of the university.

At Cornell University, Mr. H. S. VANDIVER and Dr. G. M. ROBISON have been appointed instructors in mathematics.

Owing to an unexpected increase in the number of students, the regular staff of the department of mathematics in the summer session of Cornell University was augmented by the appointment of Professor M. G. GABA of the University of Nebraska, Professor F. W. BEAL of the University of Tennessee, and Mr. ARTHUR HARMAN.

D. H. R. HASSÉ, late fellow of St. John's College, Cambridge, and senior lecturer in mathematics at the University of Manchester, has been appointed professor of mathematics at the University of Bristol.

J. HAAG, who received his doctorate from the University of Paris in 1910, has been appointed professor of differential and integral calculus at the University of Hancy.

It is planned to organize at the University of Strassburg conditions which will be attractive for more advanced American graduate students of mathematics. Except at the University of Paris the department of mathematics will have the largest number of instructors of any university in France. For the coming year these are: PÈRÈS, professor of general mathematics; VALIRON, professor of differential and integral calculus; VILLAT, professor of mechanics; FRÉCHET, professor of higher analysis; ESCLARGON, professor of astronomy; and three maîtres de conferences, ANTOINE, DARNOIS, and VÈROMET.

Monsieur CHAZY has been appointed professor of general mathematics at the University of Lille, in place of Professor JEAN CLAIRIN, killed in battle in 1914.

CLAUDE GUICHARD, professor of general mathematics at the University of Paris, has been appointed to the chair of higher geometry there, made vacant by Darboux's death. Professor E. P. J. VESSIOT, of the University of Lyons, has been appointed to succeed Professor Guichard as professor of general mathematics.

Monsieur ROY has been appointed professor of rational mechanics at the University of Toulouse, to replace the late Professor LATTÈS.

Professor UGO AMALDI, of the University of Modena, has been appointed professor of descriptive geometry at the University of Padua.

Professor TULLIO LEVI-CIVITA, of the University of Padua, has been appointed professor of higher analysis at the University of Rome.

Professor CARLO SEVERINI, of the University of Catania, has been appointed professor of infinitesimal analysis at the University of Genoa.

A. MOHRMANN has been appointed ordinary professor of mathematics at the University of Basel.

RODOLPHE GUIMARÃES, the Portuguese engineer, died in 1918 aged 52 years. His 160-page work on *Les Mathématiques en Portugal au XIXe Siècle*, prepared for the Paris Exposition in 1900, was enlarged by about 500 pages in the second edition (Coïmbre, 1909) entitled *Les Mathématiques en Portugal*.

MATTEO BOTTASSO, chargé du cours of rational mechanics at the University of Messina, died at Turin, October 3, 1918, aged 40 years. He was the author of *Analyse vectorielle générale*, volume 4: *Astatique* (Pavia, 1915), in the work of Buralli-Forti and Marcolongo.

Dr. C. BRANDENBERGER, professor of mathematics in the canton school, Zürich, and professor of mathematical didactics and methodology in the normal section of the Polytechnikum, died January 2, 1919, in the forty-sixth year of his age. He contributed, to the International Commission on the Teaching of Mathematics, the long report (1912) on mathematical instruction in Swiss gymnasia and "real schools."

Professor MAXIME BÔCHER's mathematical library has been purchased for the library at the Proving Ground, Aberdeen, Md.

The state legislature of California has established a Southern California branch of the University of California in connection with the Los Angeles State Normal School. Dr. E. C. MOORE, who is known to our readers as a philosopher who has taken active part in recent discussions on mathematics, will be the director of this branch in addition to his duties as president of the Normal School. Miss MYRTIE COLLIER who was head of the department of mathematics in the Normal School has been made head of that department in the new school. Mr. G. E. F. SHERWOOD, who was formerly associate professor of mathematics at the Colorado College of Mines, and who has been a graduate student at the University of Chicago during the past year, will take charge of the collegiate work in mathematics.

In the MONTHLY for September, 1916, reference was made to the last will and testament of Professor MITTAG-LEFFLER and his wife, with its generous provisions for the founding of a Mathematical Institute. It was originally planned that the Institute should not be put into operation until after Professor Mittag-Leffler's death. But Mr. Jourdain announces in the last issue of *Science Progress* that Professor Mittag-Leffler "has handed over a capital sum to the Academy of Sciences so that the activity of the Institute can begin at the present time on a modest scale. 'I already have,' writes Prof. Mittag-Leffler, 'two scholars endowed with travelling fellowships, and will send them to England as soon as circumstances permit.' "